Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A damping device used in a machine comprises a rotating object rotating about a rotation axis and a motor rotating said rotating object,

the damping device comprising:

a vibration damper filled with an electroviscous fluid having a viscosity changing according to a value of a voltage applied to the electroviscous fluid, and rotatably supporting at least a part of said rotating object in the electroviscous fluid;

a voltage applicator applying the voltage to the electroviscous fluid in said vibration damper; and

a controller controlling an operation of said voltage applicator so that an optimum voltage, at which the viscosity of the electroviscous fluid absorbing a vibration of said rotating object most effectively is obtained, can be applied to the electroviscous fluid in said vibration damper in accordance with a rotating speed of said rotating object.

2. (Original) A damping device according to claim 1, comprising:

an indicator indicating the rotating speed of said rotating object; and

a memory storing control information representing a relationship between the rotating speed of said rotating object and the optimum voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid absorbing the vibration of the rotating object most effectively at the rotating speed, obtained in advance, for each expected rotating speed of the rotating object, wherein

when said indicator indicates the rotating speed of said rotating object, said controller indicates said motor to rotate the rotating object at the indicated rotating speed, selects the optimum voltage applied to the electroviscous fluid to correspond to the indicated

rotating speed and controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid in said vibration damper.

3. (Original) A damping device according to claim 2, wherein

said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as an indicated value of the rotating speed of the rotating object indicated by said indicator is higher; and

said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as the indicated value of the rotating speed of the rotating object indicated by said indicator is lower.

4. (Original) A damping device according to claim 2, comprising:

a detector detecting the rotating speed of said rotating object at real time, wherein

said controller selects the optimum voltage applied to the electroviscous fluid to correspond to the rotating speed detected by said detector from the control information in said memory, and actively controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid.

5. (Original) A damping device according to claim 4, wherein

said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as the speed value of the rotating object detected by said detector is higher;

said controller selects the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as the speed value of the rotating object detected by said detector is lower; and

said controller actively controls the operation of said voltage applicator in accordance with the rotating speed detected by said detector.

6. (Original) A damping device according to claim 1, wherein

said rotating object comprises:

a damping rotation shaft supported in the electroviscous fluid in said vibration damper;

a driving rotation shaft transmitting a driving force from said motor; and

a coupling connecting said damping rotation shaft to said driving rotation shaft, wherein

a rotating force from said driving rotation shaft is surely transmitted to said damping rotation shaft through the coupling, and the coupling absorbs misalignment between the damping rotation shaft and the driving rotation shaft.

7. (Original) A damping device used in a feeding device comprising:

a rotating object having a male thread formed thereon and rotating about a rotation axis ; a motor rotating said rotating object; and a movable object making a linear motion, the damping device comprising:

a vibration damper provided with a female thread fitted into the male thread of said rotating object and transforming a rotating motion of the rotating object into the linear motion, filled with an electroviscous fluid having a viscosity changing in accordance with a value of a voltage applied to the electroviscous fluid, and movably supporting at least a part of said movable object in the electroviscous fluid;

a voltage applicator applying the voltage to the electroviscous fluid in said vibration damper; and

a controller controlling an operation of said voltage applicator so that an optimum voltage, at which the viscosity of the electroviscous fluid absorbing a vibration of

said movable object most effectively is obtained, can be applied to the electroviscous fluid in said vibration damper in accordance with a moving speed of said movable object. (col. 5 line 49 - col. 6 line 2)

8. (Original) A damping device according to claim 7, comprising:

an indicator indicating the moving speed of said movable object; and

a memory storing control information representing a relationship between the moving speed of said movable object and the optimum voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid absorbing the vibration of the movable object most effectively at the moving speed, obtained in advance, for each expected moving speed of the movable object, wherein

when said indicator indicates the moving speed of said movable object, said controller indicates said motor to move the movable object at the indicated moving speed, selects the optimum voltage applied to the electroviscous fluid to correspond to the indicated moving speed and controls the operation of said voltage applicator so that the selected voltage can be applied to the electroviscous fluid in said vibration damper.

9. (Original) A damping device according to claim 8, wherein

said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes higher as an indicated value of the moving speed of the movable object indicated by said indicator is higher; and

said controller selects, from the control information in said memory, the voltage applied to the electroviscous fluid at which the viscosity of the electroviscous fluid in said vibration damper becomes lower as the indicated value of the moving speed of the movable object indicated by said indicator is lower.

10. (Original) A damping device according to claim 8, comprising:

a detector 162 detecting the moving speed of said movable object 114 at real time,

wherein

said controller 124 actively selects the optimum voltage applied to the electroviscous fluid 144 to correspond to the moving speed detected by said detector 162 from the control information in said memory 158, and controls the operation of said voltage applicator 160 so that the selected voltage can be applied to the electroviscous fluid 144.

11. (Original) A damping device according to claim 10, wherein

said controller 124 selects the voltage applied to the electroviscous fluid 144 at which the viscosity of the electroviscous fluid in said vibration damper 140 becomes higher as the speed value of the movable object detected by said detector 162 is higher;

said controller 124 selects the voltage applied to the electroviscous fluid 144 at which the viscosity of the electroviscous fluid in said vibration damper 140 becomes lower as the speed value of the movable object 114 detected by said detector 162 is lower; and

said controller 124 actively controls the operation of said voltage applicator 160 in accordance with the moving speed detected by said detector 162.

12. (New) A damping device 140 used in a machine comprises a moving object 114 and a motor 128 moving said moving object 114,

the damping device 140 comprising:

a vibration damper 140 filled with an electroviscous fluid 144 having a viscosity changing according to a value of a voltage applied to the electroviscous fluid, and movably supporting at least a part of said moving object 114 in the electroviscous fluid;

a voltage applicator 160 applying the voltage to the electroviscous fluid 144 in said vibration damper 140; and

a controller (124) controlling an operation of said voltage applicator (160) so that an optimum voltage, at which the viscosity of the electroviscous fluid (144) absorbing a vibration of said moving object most effectively is obtained, can be applied to the electroviscous fluid (144) in said vibration damper (140) in accordance with a moving speed of said moving object (114).